

Circulation and Parking Plan for the University of Alaska Fairbanks

Fairbanks, Alaska
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Section 1

Executive Summary

The 2002 Campus Master Plan for the University of Alaska Fairbanks (UAF) established five primary goals for the campus, with an emphasis on access and circulation for the university and surrounding community. To achieve these goals, the Campus Master Plan identified 25 actions ranging from landscaping and signing improvements to developing new facilities. Several of the 25 actions pertain specifically to parking and multi-modal circulation. Implementation of the actions is intended to improve the efficiency of the parking system, mitigate vehicular access and circulation deficiencies, and improve pedestrian connectivity and continuity.



The purpose of the Circulation and Parking Plan is to provide additional guidance toward implementing the transportation related items in the Campus Master Plan. To this end, UAF formed the Circulation and Parking Subcommittee (CPS) to identify specific issues and mitigation measures to address near-term and long-term needs related to pedestrians and bicycles, the UAF shuttle system, motor vehicle circulation, and the parking system. As such, this project required technical data collection and analysis, as well as a qualitative review of the issues and potential improvements. CPS hired a team of consultants to provide expertise in the areas of transportation planning, traffic engineering, economics and finance, and landscape architecture. A public involvement process was undertaken, which included two public meetings and an on-line survey posted on the UAF web site. Additional comments were taken directly by members of the CPS.

Implementation actions were evaluated for both technical soundness and appropriateness for the character and goals of the campus community. The resulting Plan includes a wide range of measures to improve circulation and parking throughout the UAF campus. It also includes a range of strategies, from significant infrastructure changes to pedestrian enhancements to modified parking management measures. Many of the measures are tied to existing campus plans, such as the completing Tanana Loop, constructing Thompson Drive and the Visitors' Kiosk, as well as to building sites identified for future development. In addition, changes to the existing parking permit system are identified to optimize use of existing facilities.

The major recommendations are summarized below. Following these are sections describing the project purpose and process; assessing existing and future access and circulation systems; and recommending plans for non-motorized, motor vehicle, shuttle, and parking system.

Major Non-Motorized Circulation Recommendations

The primary recommended pedestrian enhancements include changes on Yukon Drive, constructing dedicated paths connecting the SRC to West Ridge/Butrovich and Residential Areas to SRC, extending the walkway in front of the Moore/Bartlett/Skarland (MBS) Complex to Patty Center, a formal walkway along Kuskokwim to Yukon Drive, and covered walkways from the parking lots on Taku Drive to Tanana Loop. These can be very expensive. Yet the demand is well established and these connections are necessary to establish a comprehensive, safe, and well-connected pedestrian system. The recommended non-motorized circulation improvements are identified below. More details can be found in the body of this Plan.

1. Yukon Drive Pedestrian Improvements

Design improvements on Yukon Drive will enhance the multi-modal environment in conjunction with Tanana Loop completion. Improvements include limiting motor vehicle access points, and providing wider sidewalks and bikeways. Improvements may also include narrowing the motor vehicle travel-way.

2. Tanana Loop Completion

Completion of the north section of Tanana Loop will connect West Ridge, the residential areas, Lower Campus, and the North Campus area with a more efficient and direct route around campus. Separate dedicated pedestrian paths or adjacent sidewalks will be constructed along the whole of Tanana Loop. Bike lanes or wide paved shoulders will also be provided along the entire length of the loop. Road design will also include appropriate access points and crossings to provide for safe and efficient movement between the core campus and the North Campus Area.

3. West Ridge Pedestrian Priority Area

The Campus Master Plan identifies the West Ridge Plaza as a future open space. UAF should develop the pedestrian plaza as planned. Limited on-street parking could be considered along Koyukuk Drive for short-term visitors to allow easy accessibility for visitors.

4. Pedestrian/Bicycle Connection Between Student Recreation Center/Nenana Lots and West Ridge

The lack of a formal pedestrian path between West Ridge and SRC/Nenana Lots was one of the most frequently mentioned pedestrian system deficiencies indicated in

the UAF web survey. Aerial photography reveals numerous informal trails between the two locations. Several improvements for pedestrian and bicycle connections are described in the body of the plan.

5. Pedestrian Connection from Moore-Bartlett-Skarland to Patty Center and Lower Campus Residential Area

Given the high amount of use this connection receives, the existing pedestrian walkway down to Ambler Lane should be covered. In addition, a formal pedestrian facility should be provided extending the MBS Complex stairway to the Patty Center. While this cost is considerable, it would provide an essential link in the pedestrian system with significant connectivity, convenience, and safety benefits.

6. Sidewalk Connection on Kuskokwim Way Between Yukon Drive and Hess Village

Provide a formal dedicated walkway on Kuskokwim Way between North Chandalar and Yukon Drive. It could be constructed separately or in conjunction with the paving of Kuskokwim Way. The walkway should also connect to the MBS parking area to provide a continuous pedestrian connection from the parking lot to Yukon Drive.

7. North Chandalar Extension

The Campus Master Plan identifies the potential extension of North Chandalar to connect to Kuskokwim Way. This is included in the motor vehicle portion of this plan. However, any future extension of this roadway is solely dependent upon the type of development that takes

place in the North Chandalar area. Regardless of whether or not motor vehicle access is allowed, North Chandalar should be extended as a pedestrian/bicycle route.

8. Pedestrian Crossing at Nenana Lots

Pedestrian crossing conflicts were identified on Tanana Loop north of the Nenana Lots. The problem is exacerbated by the fact that peak vehicular arrivals at the parking lot coincide with the peak traffic volume on Tanana Loop. With the closure of Fairbanks Street, the major left-turning movement from this intersection will shift from Tanana Loop along Nenana Lots to Thompson Drive and will bypass the Nenana Lots. This will reduce the potential for pedestrian/vehicle conflicts to some degree. Several additional recommended mitigation measures, include narrowing Tanana Loop in this section, and improving sidewalks on the south side of Tanana Loop toward South Chandalar.

9. Pedestrian Conflicts with Vehicles in Front of Signers' Hall

Given this is one of the highest volume pedestrian areas on campus and pedestrian volumes are expected to increase in the future, the majority of this parking lot should be removed. Limited visitor parking could be provided directly adjacent to Signers' Hall.

10. Pedestrian Crossing and Pedestrian Path on Taku Drive at Tanana Loop

The existing Tanana Loop/Taku Drive intersection is characterized by a steep grade on the east leg of Taku Drive, a skewed intersection, and poor sight distance due to curvature of Taku Drive. Vehicles on Taku Drive do not have to stop before going through the intersection. Taku Drive should be closed to through traffic (identified in the motor vehicle plan). Additional measures are described in the body of the plan

11. Pedestrian Grade on Taku Drive from Parking Lots

The 'serpentine' pedestrian path provided along Taku Drive is steep and slippery during the winter months. Several measures to improve the safety of this connection include provision of a covered path and/or replacing the walkway with steps. A covered walkway should be constructed across Tanana Loop.

12. Other Pedestrian Facility Improvements for Consideration

Because of the cold-weather environment and steep terrain, pedestrian accessibility is complicated. UAF should consider special design features for future projects. As the campus population increases in the long-term future, the value of these improvements may increase, particularly if the campus is to increase the emphasis on non-motorized circulation modes and peripheral parking locations. Development activity may present opportunities to install more extensive pedestrian systems.

Protected pedestrian connections should also be considered for integration with all new buildings in the campus core. These could include underground tunnels, heated sidewalks, covered and/or enclosed walkways, or pedestrian bridges.

13. Other Bicycle Facility Improvements for Consideration

Bicycles are a bona fide presence on the UAF campus. Provisions for bicycle parking and storage must be provided. Bicycle facility improvements must be esthetically pleasing, convenient and functional.

14. Pedestrian Conflicts with Vehicles in the Salcha Drive/South Chandalar Area

Improve pedestrian safety at the intersection of Salcha Drive and South Chandalar by installing a pedestrian crossing signal at this location.

Major Motor Vehicle Recommendations



The motor vehicle system is the primary mode of transportation for students and faculty for getting to and from campus. Some of the key recommendations for the motor vehicle system relate to opportunities created by the Tanana Loop extension. The Tanana Loop extension will have many impacts on the UAF circulation system, as identified above. It also provides an opportunity to mitigate existing intersection problems at the western

Taku Drive/Tanana Loop intersection. With the new roadway connection, Taku Drive can be closed to through vehicles to alleviate the sight distance problems associated with the steep grade and curvature of Taku Drive. Closing the road would also further shift vehicle traffic away from Yukon Drive.

In addition, several potential mitigations were identified for “Malfunction Junction.” However, the cost of these suggested solutions is very high. Given that traffic operations are expected to remain acceptable, and in the absence of any known safety problem, none of these mitigations is recommended.

The recommendations for the motor vehicle system are summarized below.

1. Tanana Loop Alignment and Design

Completion of Tanana Loop will connect West Ridge, the residential areas, and the North Campus area, as well as provide a safer and more efficient route between West Ridge and Lower Campus for vehicular traffic. By directing traffic to Tanana Loop, Yukon Drive becomes more of a pedestrian route, thereby improving pedestrian welfare and safety. Tanana Loop must be designed principally to serve campus needs and not to invite cross-campus traffic unrelated to UAF. The design for the route must include efforts to mitigate impacts on the research, education and recreation activities in the North Campus area. As well, access points and crossings for safe and efficient non-motorized movement between the core campus and the North Campus Area must be part of the design.

2. Yukon Drive Multi-Modal Enhancements

Yukon Drive serves as the central connector for all modes of travel, carrying high volumes of pedestrian and bicycle travel. Specific multi-modal enhancements suggested in conjunction with the Tanana Loop extension would significantly reduce motor vehicle volumes and travel speeds on Yukon Drive, consistent with the pedestrian priority treatment identified in the Campus Master Plan.

3. Tanana Loop/Western Yukon Drive Alignment at West Ridge

In conjunction with the Tanana Loop extension project, the alignment of the western ends of Tanana Loop and Yukon Drive on West Ridge is expected to be modified to provide a clearer line of sight for drivers on Yukon Drive, improving intersection sight distance and overall safety at the intersection for all approaches.

4. Natural Sciences Facility Connection to Tanana Loop

The 2002 UAF Campus Master Plan shows a planned extension of the Natural Sciences Facility access road from the Natural Sciences parking lot north to the future Tanana Loop extension. The intent of this extension is to provide access from Tanana Loop to the Natural Sciences Facility parking area. This will help to reduce traffic on Yukon Drive. For these reasons, this extension is recommended, as shown in the Campus Master Plan.

5. North Chandalar Avenue Extension

The extension of North Chandalar Avenue to Kuskokwim Way, as identified in the Campus Master Plan, would further improve connectivity and circulation for areas north of Yukon Drive and for residential areas. This connection would not substantially impact traffic on Yukon Drive but would facilitate potential residential development west of Kuskokwim Way and could allow for efficient shuttle serve to serve residential uses. Any future extension of this roadway is solely dependent upon the type of development that takes place in the North Chandalar area and, to a much lesser degree, west of Kuskokwim Way.

6. Thompson Drive and Roundabout Intersection at Tanana Loop/West Tanana (Farm Road)/Thompson Drive

A new roundabout intersection is under construction in the southwest portion of campus at the new Thompson Drive intersection with Tanana Loop/West Tanana (Farm Road). An analysis of weekday a.m. and p.m. peak hour traffic operations indicates that the roundabout will operate acceptably with 2010 background traffic volumes. With the new entrance at Thompson Drive, considerations should be given to gateway signage treatments and installing a visitor/information center along Thompson Drive between Geist Road and Tanana Loop.

7. Taku Drive/Tanana Loop Intersection Issues

The intersection of Taku Drive and Tanana Loop is located such that the grade and surrounding land topography create intersection sight deficiencies. Taku Drive west of the Cooperative Extension Service building should be closed to through traffic other than shuttle buses and emergency vehicles. The closure should not occur before the Tanana Loop extension is completed.

8. Kuskokwim Way from Yukon Drive to North Chandalar

The short unpaved segment of Kuskokwim Way was identified in the recent UAF student, faculty, and visitor survey as a motor vehicle concern. This segment of roadway should be paved and dedicated pedestrian walkways should be provided.

9. Wickersham Hall/Gruening Passenger Drop-off

Drivers frequently use the parking area located near Wickersham Hall and the Gruening Building as a passenger drop-off area. Due to the relative layout of the parking lot and dumpster and UAF Facilities Services parking space locations, circulation is limited. Remove all parking except for handicapped spaces, and remove the dumpsters to allow more safe and efficient movement of vehicles. Explore feasibility of creating a circular turnaround in this area.

10. Include short-term parking spots (10 min. or less) at locations which are convenient to major buildings throughout campus

In order to implement a successful perimeter parking system, it is essential that short-term parking be available so that faculty, staff, students, and visitors can drop off items in buildings.

Major Shuttle Recommendations

The shuttle system evaluation revealed that the shuttle currently provides good service to most connections where there is demonstrated demand. In the near term, minor system tweaks may be most appropriate to optimize service. However, as parking is shifted toward the perimeter of campus, a bi-directional loop route is recommended to most efficiently serve all origin-destination pairs. It is expected that the existing fleet could accommodate such a route structure while maintaining acceptable service frequency. However, UAF should anticipate increasing the fleet by one to three vehicles to maintain sufficient service frequency as the shift toward the perimeter is achieved. Capacity constraints may dictate the need for additional vehicles.

The major shuttle recommendations are summarized below.

1. Shuttle Capacity and Frequency Considerations

Increase shuttle capacity by expanding fleet and implementing vehicle design changes (add second door; larger low-floor vehicles; increased seat pitch; longitudinal seating) taking cost considerations into account.

2. Shuttle Handrails

For safety reasons, UAF does not currently allow riders to stand while the shuttle is in motion. This constrains capacity. Retrofit existing vehicles with hand straps to increase capacity; handrails and wrist straps could be included as options for new vehicles.

3. Shuttle Service Hour/Seasonal Modifications

To better address needs of students, faculty and staff, begin fixed-route shuttle service at 7am rather than 7:30. Expanded summer service should be considered. Fixed-route service should be expanded during winter and spring breaks.

4. Shuttle Service Reliability Strategies

Achieving both actual and perceived service reliability is critical to the success of any transit service. Several measures are recommended, including full-time dispatch personnel, centralized demand-response requests, phones in warming huts, and time-point shuttle scheduling.

5. Shuttle Route Connectivity Strategies

The current fixed-route shuttle system is oriented toward providing point-to-point connections: either from a specific parking lot to a specific activity center, or between West Ridge and Wood Center. Some pairs of campus activity zones are not directly connected by the shuttle system. Priority connectivity options for future shuttle routes should include: West Ridge to Recreation Area/Nenana Lots Connection; West Ridge and Lower Campus Connection with additional stops; and fixed-route service to residential areas.

6. Shuttle Funding

The assessment of the funding for the shuttle system showed that most colleges and universities with 'prepaid' shuttle service rely on broader revenue sources, including student fees. UAF should consider a full range of funding sources, including charging student fees for shuttle service in order to ensure that convenient and reliable service can be provided.

7. Future Transit Considerations

The UAF transit system currently comprises the shuttle fleet owned and operated by UAF, with linkages to the FNSB transit system. As the Campus Master Plan goal of shifting parking to the campus perimeter is realized, it will be necessary to provide convenient and safe connections between parking areas and the campus core. Changes to be considered would be a bi-directional loop system, new routes for the FNSB transit system that would serve West Ridge, and perhaps a light rail transit service between the west and east ends of campus.

Major Parking Recommendations

Parking management design of new parking facilities plays an important role in both the accessibility and development of the campus. Major parking strategies are discussed in terms of parking development and management measures in the paragraphs below.

1. Parking Management Designations

A modified parking permit system is recommended. Different parking designations (lots, as opposed to spaces) will include premium, general, economy,



residential and visitor. The objectives of the modified system are to increase utilization of existing facilities and to encourage campus residents to leave their cars parked in perimeter locations during weekday school hours. It also provides a pricing incentive to park in the perimeter and use the shuttle system. All economy parking lots must be electrified and have shuttle service for this system to be most effective.

2. Future Parking Development

Increased efficiency of existing parking facilities is the first priority of the parking system plan. Nevertheless, there will be a need to develop additional parking facilities in the future in order to accommodate anticipated population growth and to replace parking that may be removed for redevelopment.

Parking demand is expected to increase by approximately 840 vehicles by the year 2010. Most of the growth is expected to occur in West Ridge due primarily to expanded research facilities. Based on a target campus-wide parking utilization of 80%, and assuming that existing surpluses could be better utilized, it is estimated that approximately 415 parking spaces would have to be constructed to meet parking needs associated with future growth.

In addition, several existing parking lots have been identified for potential redevelopment for pedestrian enhancements or as building sites. The total parking lost if all of these were to occur would be up to approximately 400 spaces. Approximately of these spaces are in prime locations in Lower Campus.

Generally speaking, UAF should consider the following options with respect to future parking development for Lower Campus:

- Provide parking within structures to serve Lower Campus. These could be provided in parking levels in conjunction with future classroom and administrative buildings.
- Provide all replacement spaces in the campus perimeter (mostly North Tanana Loop) with an understanding that nearly all staff and faculty will have a much lower level of service with respect to parking.
- Reconsider some of the proposed parking removals within Lower Campus in order to retain adequate parking.
- Given that Lower Campus has relatively high parking utilization at present (non-restricted spaces were over 90% utilized in the peak hour), UAF should be proactive in addressing issues related to the potential removal of more than half of the existing parking supply.

3. Additional Parking Management Considerations

There are special user groups with specific parking needs or other characteristics that must be addressed. Most importantly, parking for commuter students is a

critical consideration. The campus population is comprised of over 50% commuters, and the current parking system does not serve their needs well. In addition, carpool parking options should be explored along with community visitor permits and overnight parking restrictions.

4. Long-Term Parking System Management

Over time, Parking Services will need to monitor parking demand and may need to shift designations, and/or modify supporting shuttle services. Periodic utilization studies should be conducted to evaluate conditions in comparison to the target utilization level for each area. This will provide an objective measure of parking operations, and reduce reliance on user perceptions to identify deficiencies. However, input from users will continue to provide guidance toward modifications in other aspects of the parking system.

Conclusion

This plan presents a framework that can help UAF maintain safe and efficient accessibility and circulation well into the future. While many specific improvements have been identified, the plan is by necessity flexible. Many future investments will have to be evaluated based on the opportunities, priorities, and specific needs of the time. UAF should anticipate updating the Circulation and Parking Plan as the campus environment changes in relation to population growth, new building development, and additional infrastructure investments.